

REMARKS

This Preliminary Amendment is being filed concurrently with a Request for Continued Examination (RCE) for entry prior to continued examination on the merits in the above-identified application. Upon entry of this Preliminary Amendment, claims 2, 10-14, 16 and 24-25 have been canceled, claims 1, 3, 5-9, 15, 17 and 19-23 have been amended, and new claims 26 and 27 have been added. Accordingly, claims 1, 3-9, 15, 17-24, 26 and 27 will be all the claims pending in the application. No new matter has been introduced by this Preliminary Amendment so entry and consideration of the Preliminary Amendment are respectfully requested.

Response to Rejections under 35 U.S.C. § 103(a)

Claims 1-9, 11, 15-23 and 25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 5,864,408 to Kumashiro (Kumashiro) in view of US Patent 5,995,243 to Kerschner (Kerschner). Claims 12-14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kumashiro in view of Kerschner and US Patent 5,980,010 to Stephenson (Stephenson). Applicants traverse the above rejections for the following reasons.

Both Kumashiro and Kerschner disclose to repeatedly update shading correction data. Whereas, in the present invention, the shading correction data is updated only once since the light source is turned on, and it is when a predetermined time has passed since the light source is turned on. Finally, Stephenson does not appear to overcome the deficiencies noted above in either Kumashiro or Kerschner.

As mentioned in the “BACKGROUND OF THE INVENTION,” in the specification or as also disclosed in Kumashiro, after a light source is turned on, the quantity of light tends to

change greatly soon after the light source is turned on, then gradually stabilizes. The present invention makes use of this phenomenon. Specifically, a period from when the light source is turned on to a period when the quantity of light changes a predetermined rate is stored as a predetermined time. Then, only when this predetermined time during which the change in the quantity of light greatly affects a read image/images has passed, the reference member arranged outside of the image reading area in the sub-scanning direction is scanned by an image sensor to update shading correction data in the main scanning direction. In this manner, when a plurality of original sheets are to be read with keeping the light source on, a high image reading operation can be performed without increasing reading time.

Kumashiro discloses the first reference white plate 14 located at a read position in the stationary reading mode, and the second reference white plate 20, located near a left side of the pressure plate 3, used when the moving reading mode is selected. The second reference white plate 20 is read by the contact image sensor 21 each time the predetermined number of original documents are read, and shading correction data is updated.

However, with the configuration as disclosed in Kumashiro, when very many original documents are to be consecutively read, the second reference white plate 20 is repeatedly read even after a decent time has passed since the light source is turned on and the quantity of light is stabilized. Since reading of the second reference white plate 20 and generation of the shading correction data take considerable time, these operations after the quantity of light is stabilized waste considerable time. As the number of original documents increases, the loss of time also increases.

Kerschner discloses a hand-held scanner which incorporates a white level reference mark to correct the white level of image signals while reading images. As the Examiner notes (see

page 4, last three lines of the Office Action), the illumination conditions of the scanner is calibrated periodically.

Accordingly, it is apparent that neither Kumashiro nor Kerschner discloses to update the shading correction data only once when “a predetermined time since said light source is turned on until a maximum of electrical signals output from said image sensor at the time said light source is turned on changes a predetermined rate” has passed.

Moreover, Stephenson does not appear to overcome the deficiencies noted above in either Kumashiro or Kerschner. Therefore, even if one of ordinary skill in the art were to combine the teachings of Kumashiro, Kerschner and Stephenson, the combination still would not teach or suggest all the features of the present invention.

Thus, not only is the configuration and operation of the present invention different from Kumashiro, Kerschner and Stephenson, but the advantages of the present invention cannot be attained from Kumashiro, Kerschner and Stephenson, either viewed individually or in combination. Accordingly, we believe that the present invention is not taught, suggested or otherwise rendered obvious over Kumashiro in view of Kerschner and Stephenson.

CONCLUSION

Applicant respectfully submits that Claims 1, 3-9, 15, 17-24, 26 and 27 are in condition for allowance and a notice to that effect is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any fees which may be required for filing this response to Office Action to Deposit Account No. 13-4500, Order No. 1232-4675.

Respectfully submitted,
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